BUCKLEY & MOSHER.

Plug for Blasting.

No. 24,006

Patented May 17, 1859.

Fig. 2.

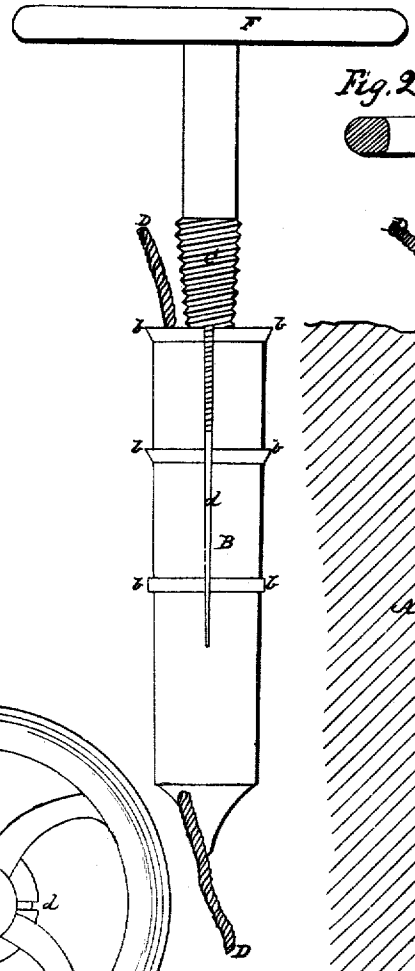
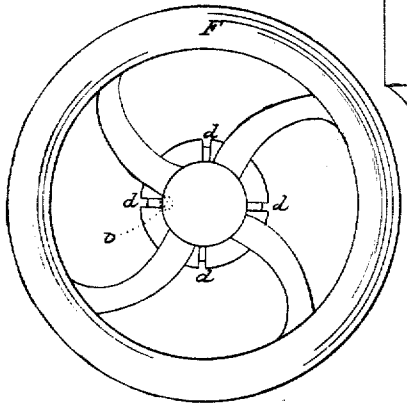
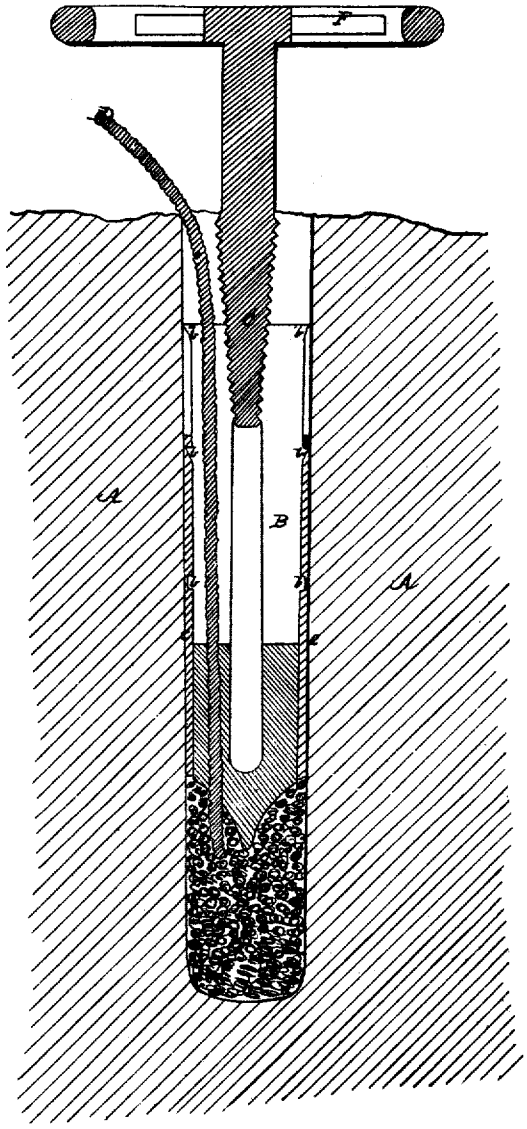


Fig. 3.





Witnesses.

John Cumming

L. A. Roberts.

Inventor.

John D. Buckley

Samuel F. Mosher

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JNO. D. BUCKLEY AND S. F. MOSHER, OF SCHAGHTICOKE, NEW YORK.

IMPROVEMENT IN PLUGS FOR BLASTING ROCKS.

Specification forming part of Letters Patent No. **24,006**, dated May 17, 1859.

To all whom it may concern:

Be it known that we, JOHN D. BUCKLEY and SAMUEL F. MOSHER, of Schaghticoke, in the county of Rensselaer and State of New York, have invented an Improved Plug for Blasting, the construction and operation of which we have described in the following specification and illustrated in its accompanying drawings with sufficient clearness to enable competent and skillful workmen in the arts to which it pertains or is most nearly allied to make and use our invention.

Our plug for blasting is designed to take the place of the sand which is usually tamped or rammed in above the powder of the blast. This plug consists of the combination of a tapered screw with a plug, a part of which is divided and made capable of expansion, said plug being so constructed as to be capable, when forced out against the rock, of taking a sufficient hold upon it, as hereinafter more fully set forth.

Our invention is represented in the accompanying drawings, as follows:

Figure 1 is a side elevation of our improved blasting-plug. Fig. 2 is a sectional elevation, showing it in position. Fig. 3 is a plan.

A is the rock in which the plug is supposed to be set. The hole to be charged with the blast is drilled in the same way when this plug is to be used as when the ordinary sand-plug is to be tamped in over the charge and the powder is put in as usual.

In the construction of the plug which we have devised, and which we use to restrain the upward force of the powder, we first make the piece B in a nearly cylindric form, as shown, but having ledges *b b* to penetrate the rock, so as to secure the plug in position. This portion B may be made of steel, hardened copper, or any other suitable metal. Steel would, however, probably be, in most cases, preferred. This part B has a central hole drilled into it from the top nearly down to the lower end, or as far down as may be necessary for the purpose. This hole is tapered at the upper end, and has a screw-thread cut in it to receive the screw C. A hole is also drilled down through the side portion of the part B, which hole is just sufficiently large to receive the fuse D to ignite the powder. After this is done, the upper part of the piece B is divided into four sections, or more or less, as may be found convenient in practice, by sawing slits *d* in it, as shown, by which it is made capable of being expanded by means of the tapered screw C, so as to force the flanges or projections *b b* into the rock, and thus give the plug a hold upon said rock, to enable it to resist the action of the blast, which would, of course, otherwise force it out of position. A piece of india-rubber pipe, *e*, is slipped upon the lower end of the part B, to give a more perfectly-tight joint, to prevent the escape of the powder, or, rather, of its resultant gases, between the plug and the rock. The end next the powder of the part B is tapered off, as shown, so that it will slightly enter the charge.

F is a hand-wheel, to facilitate the turning of the screw C.

The operation is as follows: The hole having been drilled in the usual manner to receive the plug, the powder is first introduced, the fuse D is then put into the plug, and adjusted, the plug is introduced and placed down upon the powder, and the screw C, being turned, forces the ledges or flanges *b b* into the rock sufficiently to support the plug against the action of the blast, when the fuse may be fired and the blast exploded. It is obvious that if the ledges *b b* are properly forced into the rock the plug cannot be blown out of position till the rock gives away, and when it does there is plenty of room for the gases to escape without forcing away the plug. For this reason it is found in practice that this plug is seldom blown far away from its position, though at first glance it might perhaps seem that it would be sent flying through the air a great distance.

The advantages of this plug are obvious, especially in plugging horizontal blasts, where it is difficult to introduce the sand for tamping. An overhead blast might even be managed by using this plug.

It is well known to miners and quarrymen that the labor of plugging the blast by the old process of tamping in sand around the fuse is very considerable, and that blasts are often lost by some imperfection in the operation, or by the dampness of the sand employed for the purpose. These difficulties are obviated by our invention. The plug may be inserted in a moment, and if the fuse is good the connection is sure.

The particular improvement which constitutes our said invention, and which we claim as having been originally and first invented by us, is—

The combination of the tapered screw with the expanding metallic plug having ledges or other equivalents to penetrate the rock, and provided with an aperture for the fuse, as set forth.

JOHN D. BUCKLEY.
S. F. MOSHER.

Witnesses:
JOHN CRUMLY,
L. A. ROBERTS.